



Welcome New FoodNet Laboratories

The Foodborne Diseases Active Surveillance Network (FoodNet) is the principal foodborne disease component of CDC's Emerging Infections Program (EIP). FoodNet is a collaborative project of the CDC, ten EIP sites (California, Colorado, Connecticut, Georgia, Maryland, Minnesota, New York, New Mexico, Oregon and Tennessee), the U.S. Department of Agriculture (USDA), and the Food and Drug Administration (FDA). The project consists of active surveillance for foodborne diseases, designed to help public health officials better understand the epidemiology of foodborne diseases in the US.

Current "passive" surveillance systems rely upon reporting of foodborne diseases by clinical laboratories to state health departments, which in turn report to CDC. Although foodborne diseases are extremely common, only a fraction of these illnesses are routinely reported to CDC via these surveillance systems. This is because a complex chain of events must occur before such a case is reported, and a break at any link along the chain will result in a case not being reported.

FoodNet is an "active" surveillance system, meaning public health personnel frequently contact laboratory staff to find new cases of foodborne diseases and report these cases electronically to CDC.

Foodborne diseases include infections caused by bacteria such as *Salmonella*, *Shigella*, *Campylobacter*, *Escherichia coli* O157, *Listeria monocytogenes*, *Yersinia enterocolitica*, and

Vibrio, and parasites such as *Cryptosporidium* and *Cyclospora*. In 1995, FoodNet surveillance began in five locations: California, Connecticut, Georgia, Minnesota and Oregon. Each year the surveillance area, or catchment, has expanded, with the inclusion of additional counties or additional sites (New York and Maryland in 1998, eleven counties in Tennessee in 2000, Colorado in 2001, and New Mexico in 2002).

The four major metropolitan areas (including 11 counties) comprised the original Tennessee surveillance area. Those eleven counties contained 39 laboratories, all of which participated in FoodNet. As of January 2003, the FoodNet surveillance area will include the entire state. There are an additional 81 laboratories in these new counties. The goal is to facilitate their participation, bringing the total number of laboratories being visited by surveillance officers to 131. Epidemiology and nursing staff members from the regional health departments will be carrying out the active surveillance.

We welcome these new laboratories. Our goal is to facilitate the development of this new aspect of a program that has been functioning successfully for the past three years. The following article describes some of the successes of FoodNet.

Preliminary FoodNet Data on the Incidence of Foodborne Illnesses, United States, 2001

Data gathered in 2001 via the FoodNet Program shows a decrease in the major bacterial foodborne illnesses, however, the declines were not continuous which indicates

that ongoing preventive efforts are needed.

The number of FoodNet sites and the population under surveillance nearly doubled from 1996 to 2001. To account for the increased population and variation in the incidence of the nine foodborne illnesses among sites, a log-linear Poisson regression model was used to estimate the effect of time on the incidence of the various pathogens, treating time (i.e. calendar year) as a categorical variable with 1996 as the reference year.¹

Bacterial pathogens with the highest relative incidence during 1996-2001 were *Campylobacter*, *Salmonella*, and *Shigella*. Pathogens with the lowest incidence were *E. coli* 0157, *Listeria*, and *Yersinia*. The incidence of infection with most pathogens decreased during 1996-2001. For four pathogens, *Yersinia*, *Listeria*, *Campylobacter*, and *Salmonella*, this decrease was observed consistently over a number of years.²

The declines in the incidence of these foodborne infections occurred in the context of several control measures, including implementation by the U.S. Department of Agriculture's Food Safety Inspection Service (FSIS) of the Pathogen Reduction/Hazard Analysis Critical Control Point (HACCP) systems regulations in meat and poultry slaughter and processing plants, along with changes in egg production guidelines. There have also been industry-wide efforts to reduce food contamination, to improve food safety education, and to increase regulation of imported food.

From Pigs to Pacifiers: An Outbreak of Yersiniosis in Infants

Background: *Yersinia enterocolitica* is an uncommonly reported cause of foodborne

disease outbreaks. Swine are known reservoirs of the pathogen. In January 2002, a FoodNet surveillance officer reported a cluster of seven cases of *Yersinia*, an unusual number of laboratory-confirmed cases of this pathogen in one of the laboratories she routinely visited. A closer examination revealed that all of the cases were black infants under the age of one year. A decision was made to investigate the outbreak. A hypothesis-generating questionnaire revealed that chitterlings had been prepared in all of the homes prior to the onset of the illness.

Methods: A case-control questionnaire was administered to the parents of cases and age- and race-matched controls, obtained from the hospital of the diagnosing laboratory. Cases were defined as residents of Tennessee less than one year of age with culture-confirmed *Y. enterocolitica* infection occurring between 11/15/2001 and 2/15/2002. Isolates of *Y. enterocolitica* from cases were serotyped at CDC. Samples of chitterlings from grocery stores were cultured for *Yersinia* and *Salmonella*.

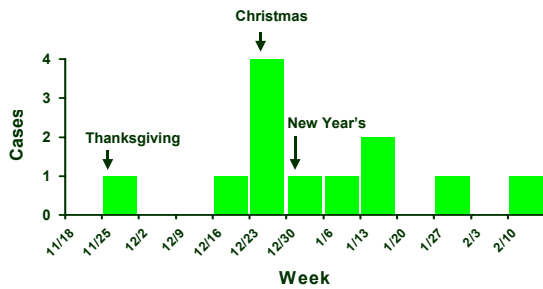
Results: Twelve cases of infant *Yersinia* infection were identified. All were in black infants; 10 cases occurred in January, and 10 were residents of the same city. Ten cases and 51 controls were interviewed in the case-control study. Mean age of cases was 215 days (range 106-360 days). Chitterlings are the cooked intestines of swine and are frequently prepared for festive occasions such as Thanksgiving and Christmas by southern blacks. In this outbreak, they had been prepared in the homes of all cases shortly prior to their illness, compared with only 35% of controls ($p < 0.001$).

The epidemiologic curve on the next page depicts the cases by week. Parents of seven cases acknowledged exposures that may have led to infection of the infant, such as handing the infant a pacifier during cleaning of chitterlings, or splashing contaminated water on a bottle.

¹ Frome EL. The analysis of rates using Poisson regression models. *Biometrics* 1983; 39:665-74.

² Centers for Disease and Promotion. Preliminary FoodNet data on the incidence of foodborne illnesses-selected sites, United States, 2001. 2002; 51:325-9.

Figure
Epidemic Curve



Conclusions: This outbreak of yersiniosis in black infants was associated with preparation of chitterlings in the home. While parents must be educated about safe preparation of chitterlings, decontamination of chitterlings prior to sale with methods such as irradiation should be strongly considered.¹

The Impact of Pneumococcal Conjugate Vaccine on Emergency Room Physicians

Background. The management of the febrile 3- to 36-month old child without a source is controversial, specifically regarding obtaining blood cultures and white blood counts. *Streptococcus pneumoniae* is the leading cause of meningitis, otitis media and pneumonia and pneumonia in children. It is the second leading cause of bacteremia and produces serious invasive disease for this age group. The widespread use of the new heptavalent pneumococcal conjugate vaccine (PCV) since 2000 has reduced the incidence of occult bacteremia in children but it is not clear whether this has led to a change in clinical practice among emergency room physicians.

Methods. A survey was mailed to all emergency medicine physicians in Tennessee. The survey consisted of a case presentation of an eight month-old, well-appearing child with a

temperature of 102.2F with no obvious source of infection on history or physical exam.

Included in the survey form were questions regarding empiric laboratory testing, treatment options, disposition, practice environment, and years in practice. Respondents were also asked whether they had changed their management of the febrile child without a source over the past year. Those who stated that they had changed their management were asked to specify the reason for the change in practice.

Results: Surveys were completed by 238 (57.9%) of the 411 emergency physicians. Thirty-five forms were excluded because they moved out of state, retired, changed practice, or limited their practice to adults. Of the remaining 203 respondents, 22 (10.8%) stated that they had changed their work-up of the febrile child in the past year. Twelve (55%) attributed this to changes in the literature, six (27%) to the *Haemophilis influenzae* B vaccine, one (4%) wrote "shots" as the reason, and three (14%) attributed their change to PCV.

Conclusions: Despite the fact that children have been immunized with PCV since 2000, most physicians surveyed do not appear to have changed their management of the febrile child. Any changes related to the new PCV may require more widespread knowledge of the profound impact of the vaccine on pneumococcal disease or changes in clinical practice guidelines.¹

Voluntary Smallpox Vaccination in Tennessee

On December 13, 2002, President George Bush announced that he was requesting that volunteer health care workers and public health teams be vaccinated. He stated that

¹ Jones TF. An outbreak of yersiniosis in infants. Presented at the 40th Annual Meeting of the Infectious Disease Society of America, October 24-27, 2002, Chicago, IL.

¹ Colmenares P, Craig, A, Schaffner W. Impact of pneumococcal conjugate vaccine on emergency room physicians. Presented at the 40th Annual Meeting of the Infectious Disease Society of America, October 24-27, 2002, Chicago, IL.

vaccination is not recommended for the general public. The Tennessee Department of Health has developed a program for the vaccination of a limited number of health care volunteers to prepare for possible bioterrorism in the absence of any known smallpox disease in the world since 1977(pre-event vaccination).

Public Health Smallpox Response Teams

The first element of the pre-event program in Tennessee has been the identification of eight public health response teams. They are located across the state so that one team can be in any part of the state within 1 1/2 hours. Each six-person team is headed by a health department physician and has at least two physicians, two nurses and two members who are experienced in outbreak investigation. All are health department employees and can be reached 24 hours a day, seven days a week. These teams will be responsible for responding immediately to a possible smallpox case.

Pre-Event Clinic Sites

Seven cities have been selected for vaccine clinic sites. They were chosen for their proximity to the greatest number of the state's larger hospitals. The clinics will be located in Johnson City, Knoxville, Chattanooga, Nashville, Murfreesboro, Jackson, and Memphis.

Health Care Smallpox Response Teams

The Tennessee Department of Health has identified acute care hospitals in the state that can provide smallpox response teams. The teams in these hospitals would be vaccinated and in the event of a bioterrorism release of smallpox, would be responsible for caring for the first few smallpox patients requiring hospital admission and for evaluating and managing patients who present with suspected smallpox.

For the first 7-10 days after patients with smallpox have been identified, this team would be hospital-based and provide care 24 hours a day. Non-essential workers would be restricted from entering the rooms of patients with smallpox.

The hospitals have been provided detailed information regarding the management of the vaccination program. Each one has been asked to submit a list of staff members including ER physicians and nurses, ICU nurses and physicians, residents, medical ward physicians and nurses, x-ray and respiratory technicians, and security and housekeeping staff, who are willing to be vaccinated. Larger facilities may immunize more staff members. All vaccinations are to be voluntary. This pre-event vaccination program is expected to begin in February 2003. If health care providers have questions about the program they should call their local health department or CEDS at 615-741-7247.

Post-Event Response

Should the United States experience a smallpox bioterrorist attack, there are plans in place for assuring that voluntary vaccinations take place safely and rapidly. The plans call for offering vaccinations to all Tennesseans without contraindications over a 10-day period. Local health departments are currently recruiting volunteers to help staff these high-volume clinics; please call your local health department if you are interested in volunteering. One case of smallpox anywhere in the world would constitute an international public health emergency. Both the United States and the state of Tennessee must prepare for such an event. A deliberate and careful approach to screening and vaccinating health care and public health workers will provide one safe and effective method for making us prepared.

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